STOLYAROVA, V.

Progressive work practice should be an example for all workers.
Sov.profsoiuzy 6 no.13:59 O '58.   (MIRA 11:11)

1. Predsedatel' komiteta profsoyuza tsekha No.1 Yaroslavskogo
zavoda rezino-tekhnicheskikh izdeliy.
                    (Yaroslavl--Chemical industries)

ZHDANOVA, V.N.; SAVITSKIY, A.P.; STOLYAROVA, V.I.

X-ray analysis of the temperature stability of defects in deformed copper and its alloys. Izv. vys. ucheb. zav.; fiz. no.2:15-22 '58.

(MIRA 11:6)

1.Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstven-nom universitete imeni V.V. Kuybysheva.
   (Copper alloys--Testing)
   (Metals, Effect of temperature on)

SAVRIK, M.Ye.; STOLYAROVA, V.K.

Lambliogenic hepatocholengaitis in children and its remote sequels.
Pediatriia, Moskva No.3:35-40 May-June 51.   (CLML 21:4)

1. Docent Savrik. 2. Of the Children's Propedeutic Clinic, Second Moscow
Medical Institute imeni Stalin (Director--Prof. V.A. Vlasov), attached to
the Children's Hospital imeni Filatov (Head Physician--Honored Physician
RSFSR V.V. Kvitnitskaya).

VLASOV, V.A.; STOLYAROVA, V.K.

D hypervitaminosis in infants. Vop. okh. mat. i det. 2 no.2:11-15
Mr-Ap '57   (MLRA 10:4)

1. Iz kafedry propedivtiki detskikh bolezney (zav.-prof. V.A.
Vlasov) II Moskovskogo meditsinskogo instituta imeni I.V. Stalina
na baze Detskoy bol'nitsy imeni N.F. Filatova (glavnyy vrach M.V.
Kalugina)
        (VITAMINS--D) (INFANTS--DISEASES)

SOV/137-58-10-21532

Translation from: Referativnyy zhurnal, Metallurgiya 1958, Nr 10, p 154 (USSR)

AUTHORS: Zhdanova, V. N., Savitskiy. A. P., Stolyarova, V. N.

TITLE: Temperature Stability of Distortions in Copper and its Alloys
            (Temperaturnaya ustoychivost' iskazheniy v medi i yeye
            splavakh)

PERIODICAL: Dokl. 7 y Nauchn. konferentsii posvyashch. 40 letiyu
            Velikoy Oktyabr'sk. sots. revolyutsii. Nr 2. Tomsk Tomskiy
            un-t, 1957, p 60

ABSTRACT: Temperature stability of distortions in Cu and in Cu Al,
            Cu Zn, and Cu Ni alloys was studied by means of X-ray diffraction
            analyses and measurements of microhardness. Temperature
            intervals for primary recrystallization were established. The
            energy of activation of recrystallization process was calculated
            from X-ray diffraction pattern data obtained in investigations of
            the initial recrystallization. The rate of progress of softening
            of the alloys was computed from data obtained by microhardness
            measurements of specimens after the latter had been annealed at
            different temperatures. A fastest rate of softening was observed   Z.F.
            in the Cu-Zn alloy. Isothermal recovery curves were plotted for
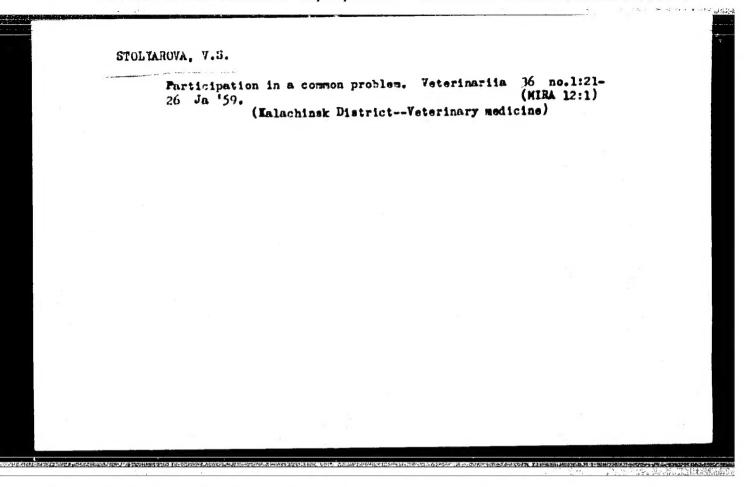Card 1/1   Cu and its alloys. 1. Copper--Deformation 2. Copper--Temperature factors
            3. Temperature--Stability

STOLYAROVA, V.S.

Stezhki veterinary section. Veterinariia 33 no.11:16-20 N '56.
(Degtyanka District--Veterinary medicine)

ANULYAROVA, V.S.

Valuable and needed book ("Laboratory examination methods in veterinary practice." Reviewed by V.S. Stolizrova). Veterinariia 35 no.9:80-82 S '58. (MIRA 11:9)

(Veterinary medicine)

STOLIAROVA, V.S.

Participation in a common problem. Veterinariia 36 no.1:21-
26 Ja '59.   (MIRA 12:1)
(Kalachinsk District--Veterinary medicine)

STOLYAROVA, V.S.

A valuable manual "Organization of veterinary medicine in the
U.S.S.R." by A.G. Ginzburg, A.D. Ivanov. Reviewed by V.S. Stoliarova.
Veterinariia 36 no.4:88 Ap '59.   (MIRA 12:7)
                (Veterinary medicine)
                (Ginzburg, A.G.) (Ivanov, A.D.)

SMIY...WA, V. I.X

Valuable Handbook for Veterinary Surgeons [Review of r port n t. b
of N. A. Shenintseva "Mycoses and Mycotoxicoses of Animals," received at the
Editorial Office]

Veterinariya VOL. 38, no. 7, July 1961 p 94.

137-58-5-9317

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 75 (USSR)

AUTHORS: Ponomarev, V. D., Stolyarova, Ye. I., Koz'min, Yu. A.,
Favorskaya, L. V., Shalavina, Ye. L.

TITLE   A Leaching Treatment of Dust From Furnaces of Lead Plants
(Shchelochnoy sposob pererabotki pyley svintsovykh zavodov)

PERIODICAL   Izv. AN KazSSR. Ser. gorn. dela, metallurgii, str-va i
stroymaterialov, 1956, Nr 4 (15), pp 3-17

ABSTRACT   The authors present a technology of a dust-processing system
intended to increase the extraction of Cd Tl, and In from roasted
dusts issuing from smelting furnaces in lead plants. The system
possesses the following advantages 1) the Tl is extracted in the
early stage of dust processing namely, during aqueous leaching;
the extraction of metallic Tl constitutes 52-57%; the electrolytic
Tl, obtained by means of a two-stage electrolysis process, is
99.998% pure; 2) large amounts of Pb, Zn, and As are extracted
into solution in the process of alkaline leaching. Cd and In re-
main in the residue. Owing to the considerable reduction in the
weight of the leaching residue (down to 1/6-1/11), the amount of
Cd and In contained in it is 6-11 times greater than it was in the
original dust.   G.S.

Card 1/1

1. Lead ores--Processing   2. Metals--Separation   3. Electrolysis
--Applications

Stolyarova, Ye I

USSR/Chemical Technology. Chemical Products and Their Application.   J-6
        Mineral Salts. Oxides, Acids, Bases.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27432

Author : L.V. Favorskaya, Ye.I. Stolyarova
Inst   : Academy of Sciences of Kazakh SSR
Title : Speed of Decomposition of Zinc Oxide Minerals by Caustic
         Soda Solution

Orig Pub: Izv. AN KazSSR, Ser. gorn. dela, stroymaterialov i metallurgii,
         1956, vyp. 6, 92-103.

Abstract: The speed and the completeness of the interaction reaction of the
         minerals smithsonite ($ZnCO_3$) (I) and calamine ($Zn_2SiO_4 \cdot H_2O$) (II)
         with NaOH solution (III) was studied. The decomposition of I
         and II was studied with regard to the dependence on the concen-
         tration of III, temperature, the speed of the pulp agitation, the
         magnitude of the caustic modulus of the solution and the fineness
         of the mineral grains. It is shown that silica and soda produced

Card   : 1/2   -4-

USSR/Chemical Technology. Chemical Products and Their Application.   I-4
         Mineral Salts. Oxides, Acids, Bases.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27432

         at the decomposition of I and II do not pass completely into the
         solution in consequence of their limited solubility in III and
         produce a film on the surface of the mineral, which sharply slows
         the reaction down being a basical diffusion resistance. The
         temperature and concentration of III influence the solubility
         and the conditions of formation of the film of reaction products.

Card   : 2/2   -5-

PONOMAREV, V.D.; STOLYAROVA, Ye.I.; KOZ'MIN, Yu.A.; FAVORSKAYA, L.V.;
SHALAVINA, Ye.L.

Alkali method of treating lead refinery flue dusts. Izv.AN Kazakh.
SSR.Ser.gor.dela met., atrol. i strolmat. no.4:1-17 '57. (MIRA 11:4)
(Flueash) (Leaching)

SOV/137-58-7-14581

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 91 (USSR)

AUTHORS: Shalavina, Ye.L., Stolyarova, Ye.I.

TITLE: Cementation of Lead from Alkaline Solutions by Zinc (Tsement-atsiya svintsa iz shchelochnykh rastvorov tsinkom)

PERIODICAL: Izv. AN KazSSR. Ser. gorn. dela, metallurgii, str-va i stroymaterialov, 1957, Nr 4 (15), pp 18-29

ABSTRACT: A description is provided of the results of laboratory exper-iments in the cementation of Pb from alkaline solution by metal-lic Zn. The precipitation of the Pb occurred along the side sur-face of a rotating Zn cylinder, out of solution containing 300 g caustic per liter and 1.98 g Pb per liter, at various rates of stirring (rotation of the Zn cylinder) and temperatures. Also checked was the influence of a change in the concentrations of Pb and caustics in the solution. The linear ratio of the reaction to the rate of stirring and the low temperature coefficient of the reaction rate characterize the process of Pb precipitation as a process of diffusion. An increase in the concentration of caustic in the solution sharply reduces the rate of reaction ow-ing to an increase in viscosity. An increase in the concentration

Card 1/2

Card 2/2

13/-58-5-7322

Translation from: Referativnyy zhurnal Metallurgiya, 1958, Nr 5, p 76 (USSR)

AUTHORS   Shalavina, Ye. L., Stolyarova, Ye. I.

TITLE   How Certain Physicochemical Factors Affect the Electrode Potential of Zinc in the Process of Cementation of Lead From Alkaline Solutions (Vliyaniye nekotorykh fiziko-khimicheskikh faktorov na elektrodnyy potentsial tsinka pri tsementatsii svintsa iz shchelochnykh rastvorov)

PERIODICAL   Izv. AN KazSSR. Ser. gorn. dela. metallurgii, str-va i stroymaterialov, 1957, Nr 4 (15), pp 30-37 (Summary in Kazakh)

ABSTRACT.   As a result of studies of electrode potentials in the process of Zn cementation of lead from alkaline solutions, the following facts were established 1) the presence of Pb in the solution displaces the Zn potential in the direction of positive values; 2) an increase in temperature and concentration of NaOH in the solution produces a negative change in the potential, 3) the rate of progress of the cementation process may be evaluated qualitatively by observing variations in electrode potentials.

Card 1 1   G.S.

SOV 137-58-7-14580

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 91 (USSR)

AUTHORS   Stolyarova, Ye.I., Svirchevskaya, Ye.G.

TITLE: Decomposition of Lead and Zinc Sulfides by Solutions of Caustic Soda (Razlozheniye sul'fidov svintsa i tsinka rastvorami yedkogo natra)

PERIODICAL   Izv. AN KazSSR. Ser. gorn. dela, metallurgii, str-va i stroymaterialov. 1957, Nr 4 (15) pp 43-52

ABSTRACT   A description is offered of the results of laboratory experiments in the decomposition of galena (PbS) and sphalerite (ZnS) by NaOH under various conditions in the autoclave under pressure. At standard atmospheric pressure and temperatures up to 100°C, the dissolution of Pb and Zn sulfides by caustic proceeds with formation of plumbates and zincates of Na and Na_2S at a slow rate. As pressure and temperature rise, the reaction rate increases sharply. At 25-atm pressure, PbS undergoes 99.3% decomposition in 1 hour, and 78.7% of the ZnS is decomposed. As leaching time is increased, total extraction of metal increases, but the time rate undergoes a sharp drop.
Card 1/2   The more finely the material is divided, the higher the rate of

SOV/137-58-7-14580

Decomposition of Lead and Zinc Sulfides by Solutions of Caustic Soda

extraction due to the increase in the solid-liquid interface. Under the same conditions, simultaneous leaching of PbS and ZnS yields 99.6% Pb extraction and up to 99.9% Zn extraction. The experiments established that Na plum-bate acts as a catalyst in the dissolution of ZnS.

A.P.

1. Lead sulfides--Decomposition   2. Zinc sulfides--Decomposition   3. Sodium hydroxides--Applications

Card 2/2

137-58-5-9323

Translation from Referativnyy zhurnal. Metallurgiya 1958, Nr 5, p 76 (USSR)

AUTHORS   Favorskaya, L. V., Stolyarova, Ye. I.

TITLE   Conditions Required for the Formation of Arsenates of Triva-
lent Thallium (Usloviya obrazovaniya arsenatov trekhvalentnogo
talliya)

PERIODICAL   Izv. AN KazSSR. Ser. gorn. dela, metallurgii, str-va i
stroymaterialov, 1957, Nr 4 (15), pp 53-58

ABSTRACT   The conditions required for the formation of arsenates of Tl
were studied on synthetic sulfuric-acid solutions containing the
sulfate of Tl^{3+} and As acid. An aqueous solution of ammonia was
added, under stirring, to 50 cm^3 of the solution being investi-
gated, after the latter had been heated to 40^0C. Upon reaching a
definite pH value, a precipitate was observed in the solution. The
precipitate was removed and the solution was tested for Tl. The
process of precipitation of Tl in the presence of As was studied
as a function of the acidity of the medium on a solution contain-
ing 0.46 g/l of Tl, 2.3 g/l of As, and 52.9 g/l of Fe. Maxi-
mum Tl concentration, in a solution containing As and having a
pH of 1.2 amounts to 0.03 g/l. In order to determine the

Card 1/2

137-58-5-9323

Conditions Required for (cont.)

approximate composition of precipitates obtained in various media, experi-
ments were conducted on a solution which contained 0.4 g/l Tl, 3.78 g/l As,
and 52.9 g/l H$_2$SO$_4$. At a pH of 1.6-2.0, the composition of precipitates of
Tl arsenates is nearly identical, and the molar Tl-As ratio in the precipitate
amounts to 1:2. At a pH > 4 the precipitates undergo a change in color, while
the Tl-As ratio increases and, at a pH of 8.67, becomes equal to 1:0.5.

G.S.

Card 2:2

STOLYAROVA, Ye.I.; CHUKIN, Z.Q.
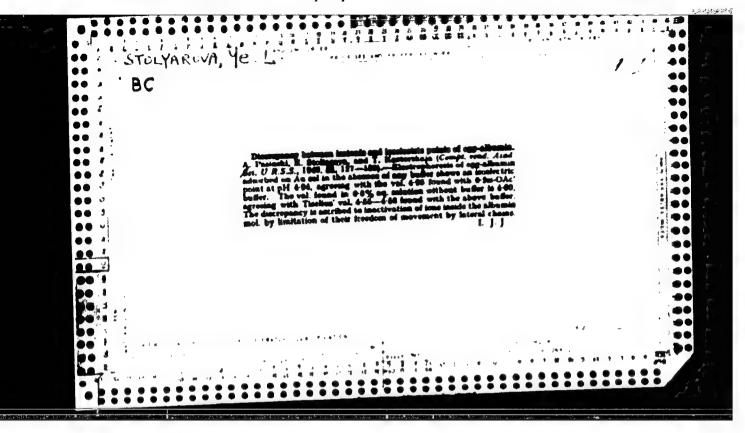
Determining the function of sensitivity of a single-crystal
gamma spectrometer with CsI (Tl) and NaI(Tl) crystals, Sbor.
nauch. rab. MIFI no.2:126-136 '60.   (MIRA 14:3)
        (Gamma-ray spectrometer)

STOLYAROVA, Ye. I.; SUCHKOV, G.M.; NESTEROVA, L.S.

Effect of the temperature of the medium on the amplification
factor of photomultipliers. Sbor. nauch. rab. MIFI no.2:137-143 '60.
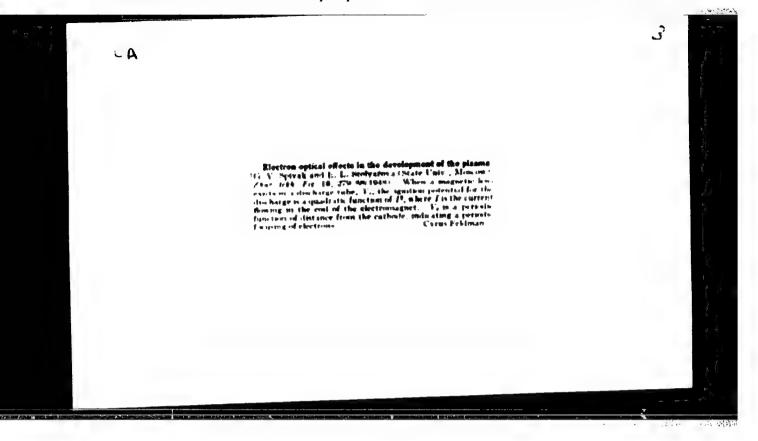(MIRA 14:3)

(Photoelectric multipliers)

STOLYAROVA, Yekaterina Lukinichna; LATYSHEV, G.D., akademik, red.;
     CHUGASOV, A.A., red.

[Applied spectrometry of ionizing radiations] Prikladnaia
spektrometriia iioniziruiushchikh izluchenii. Moskva,
Atomizdat, 1964.   422 p.   (MIRA 18:1)

1. Akademiya nauk Kaz.SSR (for Latyshev).

STOLYAROVA, Ye L

BC

Discrepancy between inwards and inwardate points of egg-albumin. A. Paisski, I. Borisovan, and T. F_____a (Compt. rend. Acad. Sci. U.R.S.S. 1941. 2. 117—180). _____ ____ of egg-albumin adsorbed on As sol in the absence of any buffer shows an isoelectric point at pH 4-94, agreeing with the vol. 4-90 found with 0-9m-OAc buffer.   The vol. found in 0-3% ___ solution without buffer is 4-90, agreeing with Theilen' vol. 4-88—4-96 found with the above buffer. The discrepancy is ascribed to inactivation of ions inside the albumin mol. by limitation of their freedom of movement by lateral chains.

L. J. J

LA

3

Electron optical effects in the development of the plasma. G. V. Spivak and L. L. Nadyarin (State Univ., Moscow). *Zhur. Eksp. Teor. Fiz.* **18**, 570 (1948). When a magnetic lens acts on a discharge tube, V_i, the ignition potential for the discharge is a quadratic function of I^2, where I is the current flowing in the coil of the electromagnet. V_i is a periodic function of distance from the cathode, indicating a periodic focusing of electrons. Cyrus Fehlman

IMSHENETSKIY, Ye. P.

"Concerning the Effect of an Axially-Symmetrical Electric and Magnetic Field on Electron Formations." Thesis for Degree of Cand. Physico-mathematical Sci. Sub. 24 Jun 49, Moscow Order of Lenin State U imeni M. V. Lomonosov.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

STOLYAROVA, Ye. L.

USSR/Physics - Plasma   May 50
                Electrons

"Fromation of Plasma Under the Action of Electrical Impulse," G. V. Spivak, Ye. L.
Stolyarova, Phys Faculty, Moscow State U imeni Lomonosov

"Zhur Tekh Fiz" Vol XX, No 5, pp 501-515

Describes development of plasma under influence of single pulse during spark-over
(rupture) of long discharge gap for low pressures, from oscillographic studies.
Investigates influence of field of "Ironclad" magnetic lens on time andplasma
formation. Establishes that magnetic field decreases statistical time of lag and
time for natural (Proper) plasma to be set up. Submitted 18 Mar 49.

                                                        164T46

USSR/Physics - Plasma Formation   May 52

"Phase Transitions in Plasma in Process of Formation,"
G. V. Spivak and Ye. L. Stolyarova, Chair of Electron
Optics

"Vest Moskov U, Ser Fiz, Mat, i Yest Nauk" No 5,
pp 31-39

Presents simplified theory of transition of unstable
gas-discharged beam to plasma, which is considered as
second phase of plasma formation. Study of ion ki-
netics in formation of plasma yields law for estab-
lishment of start of ambipolar diffusion of ions and
electrons. Received 3 Dec 51.

                                              242T104

Electric Discharges Through Gases

Phase transitions in a developing plasma. Zest. Kosk. nr. 7 no. 5, 1958.

9. Monthly List of Russian Accessions, Library of Congress, ___November___ 1958 Uncl.

Category: USSR/Fitting Out of Laboratories. Instruments. Their Theory, H.
          Construction and Use.

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 31133

Author : Belyayev L. M., Narbutt K. I., Stolyarova Ye. L., Konstantinov
          I. Ye., Alekseyev V. A., Gil'varg A. B., Smirnova I. S.
Inst   : Academy of Sciences USSR - ᴐ/ … …
Title   : Experimental Use of Luminescent Counter for Registering X-Ray
          Spectra.

Orig Pub: Izv. AN SSSR, Ser. fiz., 1956, 20, No 7, 801-808.

Abstract: Use was made of a luminescent counter consisting of NaI(Tl) cry-
          stal and FEU-19 with necking-in, for registering primary and flu-
          orescence x-ray spectra, and for the study of fine structure of
          x-ray spectra. The electrical hookup consists of a preamplifier,
          wide-band amplifier, scaler attachment (16:1), PS-64 and electro-
          mechanical counter. Use of the counter enhances sensitivity of
          x-ray spectrum analysis by one order and lowers the exposure by
          4 times, in comparison with a gas counter.

Card   : 1/1   -6-

STOLYAROVA, Ye.L.; KONSTANTINOV, I.Ye.

Luminescent double-crystal gamma-ray spectrometer. Izv.AN SSSR.Ser.
fiz. 20 no.12:1430-1433 D '56.   (MLRA 10:3)

1. Moskovskiy inzhenerno-fizicheskiy institut.
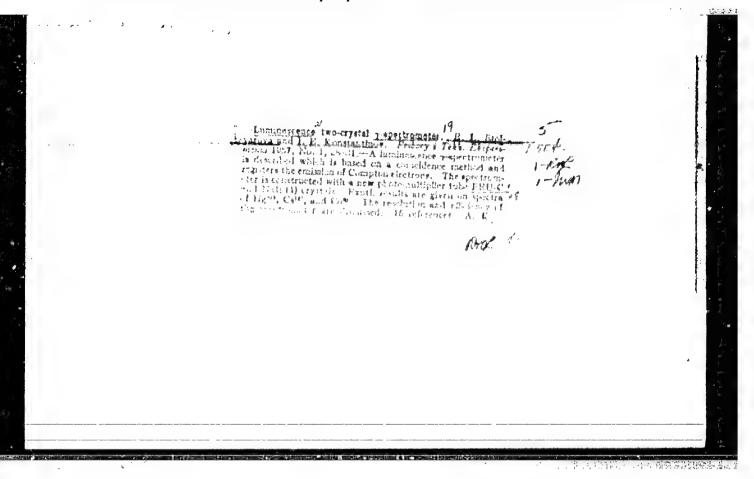   (Gamma-ray spectrometers)

INSTRUMENTATION: SPECTROMETERS

"Luminescent Double-Crystal Gamma Spectrometer", by Ye.L. Stolyarova and I.Ye. Konstantinov, Moscow Engineering-Physical Institute. Pribory i Tekhnika Eksperimenta, No 1, January-February 195 , pp 28-31.

The article describes a luminescent γ-spectrometer employing two crystals with a coincidence circuit, recording the Compton recoil electrons. The spectrometer employs new types of photomultipliers (FEU-S) and NaI (Tl) crystals. The block diagram of the γ-spectrometer is given and its test results are reported. Experimental spectra are given for H^{203}, Cs^{13}, Co^{60}, with data on the resolution of these lines and on the effectiveness of the spectrometer. Reference is made to many American papers on the subject.

Card 1/1

Luminescence two-crystal γ-spectrometer. B. L. Bich and I. R. Konstantinov. Pribory i Tekh. Eksper. 1957, No. 1, 25-31.—A luminescence γ-spectrometer is described which is based on a coincidence method and registers the emission of Compton electrons. The spectrometer is constructed with a new photo-multiplier tube FEU-29 and NaI(Tl) crystals. Exptl. results are given on spectra of Li⁷, Cs¹³⁷, and Co⁶⁰. The resolution and efficiency of the spectrometer are discussed. 16 references. A. K.

"The Experiments with a Spectrometric Photo-Multiplier with and NaJ(Te) Crystal."

A conference on Electron and Photo-Electron Multiplier; Radiotekhnika i Elektronika, 1957, Vol. II, No. 12, pp. 1552-1557 (USSR)

Abst: A conference took place in Moscow during Feburary 28 and March 6, 1957 and was attended by scientists and engineers from Moscow, Leningrad, Kiev and other centres of the Soviet Union. Altogether, 23 papers were read and discussed.

STOLYAROVA, YE. L.

PHASE I BOOK EXPLOITATION   SOV/5717

Moscov. Inzhenerno-fizicheskiy institut.

Pribory i metody analiza izlucheniy; sbornik nauchnykh rabot, vyp. 2. (Apparatus and Methods for the Analysis of Radiation; Collection of Scientific Papers, no. 2) Moscow, Atomizdat, 1960. 166 p. 4000 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy inzhenerno fizicheskiy institut.

Ed. (Title page): Ye. L. Stolyarova, Candidate of Physics and Mathematics; Tech. Ed.: S. M. Popova.

PURPOSE: This collection of articles is intended for specialists in nuclear physics, dosimetry of nuclear radiations, and shielding.

COVERAGE: The articles were prepared by scientists of MIFI (Moscow Physics and Engineering Institute) and presented at the 1957 conference of the Institute. Brief annotations to the articles have been included in the Table of Contents. No personalities are mentioned. References follow each article.

Card 1/8

Apparatus and Methods for the Analysis (Cont.)   SOV/5717

Stolyarova, Ye. L., and S. G. Chukhin. Determination of the Sensitivity
Functions of a Single-Crystal Gamma-Ray Spectrometer With CsI(Tl) and
NaI(Tl) Crystals   126
   Function of energy losses was calculated in NaI(Tl) and CsI(Tl)
   crystals at equal sizes and at energy of incident photons $E = 662$ kev.
   The theoretical calculations are in good agreement with the experi-
   mental data.

Stolyarova, Ye. L., G. M. Suchkov, and L. S. Nesterova. Effect of the
Temperature of the Medium on the Amplification Factor of Photoelectron
Multipliers   137
   It is shown that the amplification factor of photoelectron multipliers
   changes with the temperature of the medium. This phenomenon is as-
   sumed to be related to the change of the coefficient of secondary
   emission of the dynodes effected by the temperature.

Card 6/8

9.4130
24.2600 (1043,1160,1482)
T. - 7

30117
S/194/61/000/007/033/079
D201/D305

AUTHORS: Stolyarova, Ye.L., Suchkov, G.M. and Nesterova, L.S.

TITLE: The effect of ambient temperature on the gain of
             photoelectric multipliers

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
             no. 7, 1961, 23, abstract 7 G150 (V sb. Pribory i
             metody analiza izluchenii, no. 2, M., Atomizdat,
             1960, 137-143)

TEXT: Although the theory does not give any direct information
on the existence of the dependence of the secondary emission coef-
ficient on temperature, a series of experiments has proved that
this dependence in fact exists. The results of measurements of the
amplitude of output pulse from a photomultiplier are given in the
temperature range -30 to +50°C; the photomultiplier cathodes were
illuminated by intermittent glows of a neon tube. The curves show
that type $\Phi\ni Y - C$ (FEU-,S) and $\Phi\ni Y - I 6 C$ (FEU-IBS) photomultipliers

Card 1/2

STOLYAROVA, Ye.L.; DOROSHENKO, G.G.

Delayed-coincidence device for measuring time intervals from 10^{-10} to 10^{-7} sec. Sbor. nauch. rab. MIFI no.2:144-154 '60.
(MIRA 14:3)

(Time measurements)

GOLUBEV, Boris Pavlovich; STOLYAROVA, Ye.L., red.

[Ionizing radiation dosimetry] Dozimetriia ioniziruiushchikh
izluchenii; konspekt lektsii. Pod red. E.L. Stoliarovoi.
Moskva, Mosk. energ. in-t, 1961. 234 p.   (MIRA 16:6)
            (Radiation—Dosage)

26.2263

AUTHORS: Stolyarova, Ye.L., Kramer-Ageyev, Ye.A. and
            Fedorov, G.A.

TITLF: A Scintillation Spectrometer for Fast Neutrons with
            a Boron-containing Organic Scintillator

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No. 3,
            pp. 49 - 51

TEXT: The principle of the instrument is as
  follows . A fast neutron entering a scintillator may
produce a number of recoil protons as a result of multiple
scattering (in a time of the order of 10^{-8} sec). Having been
slowed down to less than 10 keV, it is captured by B^{10} nuclei.
The capture is accompanied by the emission of an α-particle
which gives rise to a second pulse (on the average 2.2 μs
after the first pulse). Using the delayed coincidence technique
and the amplitude analysis of the pulses, one can determine the
energy of the incident neutrons. In the arrangement employed
by the present authors, pulses from the anode of a photo-

Card 1/5

27695
S/120/61/000/003/005/041
E032/E314

A Scintillation Spectrometer ....

multiplier are amplified and then fed into the "alpha" and "proton" channels. The pulses in the proton channel are, on the average, delayed by 2.2 μs. Pulses from the output of the coincidence circuit, which are due to coincidences between the "alpha" and "proton" channel pulses trigger a univibrator which produces a 100 V output pulse. This pulse is used as the gating pulse for a kicksorter (АИ-IOO-I (AI-100-1)). At the same time, the pulses taken from the eighth dynode of the photomultiplier are amplified and amplitude-analysed. The scintillators employed were:
1) p-terphenyl plus o-xylol plus trimethylborate (d = 4 cm; h = 4 cm);
2) p-terphenyl plus toluol plus trimethylborate (d = h = 8 cm).
The authors carried out a theoretical calculation of the efficiency of the spectrometer, assuming that in each i-th scattering the energy of the neutron is reduced to
$E_{i+1} = E_i \exp(-\zeta)$, where ζ is the average logarithmic energy loss. The neutron slowing-down time was taken into

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account (elastic scattering with C^{12} and H^1 nuclei). In the
calculation, the cylindrical scintillator was replaced by an
equal sphere, beginning with the second scattering. The
computed efficiency curves were found to be in good agreement
with experimental data (N.A. Vlasov - Neutrons, 1955,
Gostekhizdat). The major advantage of the spectrometer is the
relatively high efficiency. Fig. 1 shows the efficiency as a
function of neutron energy (MeV). The two curves refer to the
two phosphors mentioned above. The efficiency for Curve 1 is
multiplied in the figure by a factor of 3.   The efficiency at
15, 8.65 and 4.65 MeV on this curve is 0.12, 0.60 and 2.23%.
A disadvantage of the spectrometer is the relatively low
resolution and a considerable spurious coincidence background.
A preliminary description of this apparatus was given by the
first of the present authors et al in Ref. 3 (Peredovoy nauchno-
tekhnicheskiy i proizvodstvennyy opyt, No. P-58-161/7). It
was developed during the period 1957-1958 at the Moscow
Engineering Physics Institute.

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There are 4 figures and 6 references: 3 Soviet and 3 non-Soviet.   The three English-language references quoted are:
Ref. 1 - R.C. Marshall - Phys. Rev., 1953, 79, 896;
Ref. 2 - W.H. Campbell, I.I. Kopkins - Phys. Rev., 1953, 91, 224;
Ref. 6 - F.D. Brooks - Nucl. Instr. and Meth., 1959, 4, 3.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut
(Moscow Engineering-physics Institute)

SUBMITTED: June 7, 1960

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26.2263

AUTHORS: Doroshenko, G.G. and Stolyarova, Ye.L.

TITLE: A Fast-neutron Scintillation Counter with a Low
             γ-ray Sensitivity

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No. 3,
             pp. 69 - 71

TEXT: This counter was demonstrated at the 1960 National
Soviet Exhibition.
It has recently been reported (Ref. 1 - R.B. Owen, IRE Trans.
Nucl. Sci., 1958, NS-5, No. 3, 198; Ref. 2 - F.D. Brooks -
Nucl. Instrum. and Method., 1959, 4, 151) that the scintill-
ation decay time for neutrons is greater than for γ-rays by a
factor of approximately 2. In the present counter this time
difference is transformed into an amplitude difference; the
basic circuit of the device is shown in Fig. 1. The fast-
neutron scintillation counter consists of a stilbene crystal
(30 mm in diameter and 30 mm thick), an ФЭУ-33 (FEU-33)
photomultiplier, a discriminator consisting of two germanium

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diodes, and two cathode followers. Since the decay constant
for the slow components is 0.3 μsec, the time constant of
the output RC chain was chosen to be 3 μsec. The discrimin-
ation level is determined by the bias applied to the first
diode.   The key position 1 gives the integral count of
fast neutrons and γ-rays with the photomultiplier noise cut off.
With the key in position 2, the device records the intensity of
fast neutrons with the γ-rays cut off. The time-to-
amplitude transformation is achieved by operating the photo-
multiplier in such a way that the magnitude of the output
voltage pulse is independent of the energy of the recoil
protons and electrons where, in the first case, it is equal
to about 100 V, and in the second, to 200 V. It is thus
possible to avoid the use of an amplifier and to discriminate
against the γ-field with the aid of the simple discriminator
shown in Fig. 1. Fig. 4 shows the γ and neutron calibrations.
The numbers next to the experimental points denote the max-
imum energy of the recoil protons in MeV. The numbers on the

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γ-curve refer to the maximum energy of the Compton recoil
electrons. Experiments led to the following results:
lower neutron energy threshold 1.2 MeV; efficiency
for fast neutrons (Po - Be source) — 7%; efficiency for
γ-rays (Po - Be source) $\sim$0.01%. Permissible load (integral
count of fast neutrons and γ-rays) 10^4 p.p.s. In these
experiments the recording device was the generally available
Γ\   •   (PS-10000). However, the device can easily be
made portable by the use of transistor techniques.
There are 4 figures and 4 references: 1 Soviet and 3 non-
Soviet. The three English-language references quoted are:
Refs. 1, 2 (quoted in text); Ref. 4 - C.J. Taylor,
W.K. Jentschke, M.E. Remby, F.S. Eby, P.G. Kruger - Phys.
Rev., 1951, 84, 1034.
SUBMITTED: July 9, 1960

'Card 3/5

89262

S/048/61/025/001/028/031
?029/B063

26 2244

AUTHORS: Doroshenko, G. G. and Stolyarova, Ye. L.

TITLE: A method of separating pulses caused by fast neutrons and gamma particles by using the space charge of a photoelectronic multiplier

PERIODICAL.   Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 152-156

TEXT: The recording of fast neutrons in the presence of a gamma background is known to be very difficult. It has recently been found that the effective duration of neutron emission is about twice as long as that of gamma emitters. The present paper reports on two methods making practical use of this interesting property of some organic scintillators. Ordinary photomultipliers with a linear characteristic have been used in both methods. Two pulses were taken from the photomultiplier, one from the anode and the other from the last dinode. In the first method, the pulse taken from the anode is proportional to the scintillation amplitude, while the pulse taken from the dinode is proportional to the total light yield. The

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                                             B029/B063

pulses pass through amplifiers and stretchers, and then they are trans-
mitted to the plates of the oscilloscope tube. One of the lines to be seen
on the screen of the oscilloscope corresponds to the neutrons, while the
other corresponds to the gamma rays. Though this result is very illustra-
tive, it can hardly be used for measuring the fluxes and spectra of fast
neutrons. A simpler electronic circuit is used in the second method. In
this case, lines can be separated by a proper choice of the elements and
operation of the circuit. For practical purposes, however, all elements
of the circuit must be exactly adjusted. Besides, the signal is very weak
and therefore needs considerable amplification. The method discussed here
is based on the principle of an artificial space charge at the last cascade
of the multiplier, which serves the purpose of separating the pulses caused
by fast neutrons and gamma quanta. Fig. 2 shows the circuit used in the
second method. Stilbene shows that with a short period of emission, the
influence of a space charge is much stronger although the light yield is
considerably lower. The time difference is probably changed into an am-
plitude difference by means of the space charge. The time constant of the
RC circuit of the output must be sufficiently great. Fig. 4 shows the
separator. The emitted negative pulse is shown on the right side. The
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separator has yielded good results so far. Fig. 6 shows the amplitude distribution of pulses emitted from a Po-Be source. The authors examined 25 stilbene crystals and 12 FEU-33 photomultipliers. All crystals yielded the same results. The separator makes it possible to construct a simple device for measuring the fluxes and spectra of fast neutrons and heavy ions in the presence of an appreciably strong gamma background. This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 6 figures and 4 non-Soviet-bloc references.

Legend to Fig. 2:
Brooks circuit: 1) scintillator;
2) photoelectronic multiplier;
3) separator; 4) amplifier. In
the upper left-hand corner one
may see the shapes of pulses
caused by neutrons and gamma
rays at point A.
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Fig 2

BONDARENKO, Ivan Petrovich; BUDAROVA, Nadezhda Vasil'yevna; STOLYAROVA,
    Ye.L., red.; KOPTEVSKIY, D.Ya., red.izd-va; MURASHOVA, V.A.,
    takhn. red.

[Fundamentals of dosimetry and radiation protection]Osnovy dosi-
metrii i zashchity ot izluchenii. Moskva, Vysshaia shkola, 1962.
297 p.   (MIRA 16:3)
    (Radiation--Dosage) (Radiation--Safety measures)

S/796/62/000/003/012/019

AUTHORS: Doroshenko, G.G.,   Stolyarova, Ye.L.

TITLE: Physical fundamentals of the design of high-effectiveness fast-neutron
           detectors.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza
           izlucheniy. no.3. 1962, 115-124.

TEXT: In fast-neutron flux measurement two difficulties are encountered:
(1) Neutral particles can be registered only via secondary charged particles (recoil
protons and nuclei, nuclear-reaction products); (2) fast-neutron fluxes, as a rule,
are accompanied by gamma-radiation, so that the problem of the γ-background cut-
off comes to the fore. Existing measuring methods are criticized for their low
effectiveness of registration and relatively low counting rate (hundreds of pulses
per second). Scintillation sensors with organic phosphors (stilbene, anthracene,
liquid scintillators, etc.) with an elevated H content afford a 10-40% effectiveness
in the registration of fast neutrons and a counting rate of the order of 10^3 and 10^4
pulses per second. Formerly their use was limited by their lower light output for
protons than for electrons at identical particle energies. Recent discoveries of the
interesting property of certain organic scintillators, in which the character of the

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Physical fundamentals of the design of ...   S/796/62/000/003/012/019

scintillation depends on the type of the exciting particle (cf. Brooks, F., Nucl.
Instrum., v.4, no.3, 1959, 151; Wright,G., Roy.Phys.Soc., Proc., v. B 69, no.
435, 1956, 358; Brooks, F., Progr.Nucl.Phys.,no.5, 1956, 252; Owen, R., IRE
Trans.Nucl.Sci.,v.5, no.3, 1958, 198) offer promise of a practical separation of
fast-neutron and γ-quanta impulses in a high-effectiveness sensor. The Kallmann-
Brucker work (Phys.Rev.,v.108, 1957, 1122) on the shape of the scintillational
pulses of organic luminophores is reported, as is F.Harrison's discovery of slow
components in the scintillations of stilbene and anthracene (Nucleonics, v.12, no.3,
1954, 24), Wright's findings (see above) of different fluorescent life time (FL) for
α-particles (53 nsec) and electrons (31 nsec) in anthracene, and Owen's experi-
ments (see above) on the difference in FL of the slow components of organic phos-
phors. The fluorescence in organic scintillators can be visualized as a sum of
several exponential components, namely, one "fast" nsec component which produces
80% of the total light output and one or more "slow" components with FL from
0.1 to 100 μsec. Although the FL of the fast component is independent of the nature
of the exciting particle, inclusion of the slow components in some organic scintilla-
tors affords a distinction between greater effective FL's for a proton and shorter
FL's for an electron. The FL differentiation is attributed to the different duration
of the processes initiated by ionized molecules (M+) and excited molecules (M*),
namely, recombination and return-to-ground-state photon emission, respectively.

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Physical fundamentals of the design of ...   S/796/62/000/003/012/019

Divider arrangements, designed to achieve γ-background cutoff in high-effectiveness detectors for fast neutrons (cf. Owen, R., Nucleonics, v. 17, no. 9, 1959, 92; Doroshenko, G.G., et al., present compendium, pp. 125-135, Abstract S/796/62/ 000/003/013/019), are classified according to the principle and method of division (full-page table). There are 4 figures, 4 tables, and 15 references (2 Russian-language Soviet and 13 English-language).

ASSOCIATION: None given.

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S/796/62/000/003/013/019

AUTHORS: Doroshenko, G.G., Stolyarova, Ye.L.

TITLE: Cutoff of a γ-background in high-effectiveness fast-neutron detectors with the aid of a space charge in a photoelectronic multiplier.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza izlucheniy. no.3. 1962, 125-135.

TEXT: The paper describes the experimental steup for the cutoff of the γ-background according to the authors' method (cf. AN SSSR, Izv., v.25, no.1, 1961, 152) by differentiation in effective fluorescent (deactivation) lifetime (FL) of the scintillation of some organic phosphors depending on the density of the ionization determined by the type of exciting particle (Owen, R., IRE Trans. Nucl. Sci., v.5, no. 3, 1958, 198; Brooks, F., Nucl. Instrum. & Meth., v.4, 1959, 151). The difference in FL is transformed into a difference in pulse-voltage amplitude at the photoelectronic-multiplier (PhM) output. For that purpose the PhM is operated in a special state of deep space-charge saturation in which the magnitude of the saturation amplitude is determined solely by the FL. The characteristics of NaI(Tl) crystals, anthracene, stilbene, tolane, and naphthalene used for this purpose were determined experimentally. The equipment used is illustrated schematically. The characteristics of the same substances are also depicted as measured in deep space-charge

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Cutoff of a γ-background...

saturation, also the dependence of the saturation amplitude on the FL. Agreement with literature data is termed good. Calibration curves for various PhM voltages are shown, manifesting a flat spot which spreads toward the lower-energy area with increasing voltage. The amplitude distributions for 1.5 and 2.5 kv are shown separately. A comparison of the amplitude distributions for pure γ-radiators on these graphs shows that for sufficiently high flux densities in the pulse the dependence of the maximal amplitude at the PhM output on the γ-quanta energy disappears (the above-mentioned flat spot). It can be proved experimentally that the high-energy ends of the amplitude distribution of the γ-radiation of a Po-Be source (max. energy 4.45 mev) deviates from the saturation amplitude of the pure γ-sources because of the presence of fast neutrons. Thus, a simple discrimination can provide a practically total cutoff of the γ-background. The principal advantage of this method over R.Owen's method (Nucleonics, v. 17, no. 9, 1959, 92) consists in its delivery of large-amplitude PhM-output pulses of very short duration (photo), thereby rendering unnecessary a pre-recorder amplifier. The short output-signal durations permit heavy sensor loads, up to $3 \cdot 10^4$ pulses per second. There are 10 figures and 8 references (1 Russian-language Soviet and 7 English-language, of which one is cited in Russian translation).

ASSOCIATION: None given.

Card 2/2

S/796/62/000/003/014/019

AUTHORS: Doroshenko, G.G., Stolyarova, Ye. L.

TITLE: Use of space charge and gaseous enhancement in a photoelectronic multiplier for the separation of fast-neutron and γ-quantum impulses.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza izlucheniy. no. 3. 1962, 136-142.

TEXT: An experimental investigation was made to increase the saturation-amplitude ratio for the recoil protons and recoil Compton electrons ($\rho = n/\gamma$) as set forth in the authors' preceding paper in the same compendium (Abstract S/796/62/000/003/013/019). For that purpose the effect on ρ of the operation of the three last photomultiplier (PhM) cascades with various values of the load resistance R_{13} in line with the 13th dynode is studied (circuit shown). It was discovered that with large values of R_{13}, at and above 200 kohm, and at certain fairly reduced voltage differences between the 12th and the 13th dynode ρ jumps abruptly from appx. 1.2 to appx. 1.6-2.0, an effect which leads to a clear separation of the fast-neutron impulses on the oscillograms (photorecordings shown). This interpretation was verified experimentally by means of impulse-amplitude distributions from a Po-Be source, shielded by various layers of paraffine and Pb. A 100-channel "Raduga" analyzer was employed. The plotted graph shows that a 406-mm thick paraffine layer weakens the fast-neutron flux to near-zero, whereas the number of γ-quanta pulses is approximately halved. The reverse result occurs with Pb. A γ-neutron calibra-

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Use of space charge and gaseous enhancement...   S/796/62/000/003/014/019

tion (graph) shows a clearly defined saturation plateau for both γ-quanta and neutron
impulses, with a saturation-amplitude ratio of the order of 2. The points on the
gamma-calibration curve were obtained with an array of Cs^{137}, Zn^{65}, ThC^{11}, and
Po-Be γ-sources; the points on the neutron curve were obtained with a Po-B source
for 5.5 mev, Po-Be for 11 mev, a neutron-generator $D(d,n)$ and $T(d,n)$ reaction
for monochromatic neutrons at 4 and 15.85 mev, respectively, and a Van-de-Graaf-
equipment $T(p,n)$ reaction for monochromatic neutrons at 0.76-3.11 mev. The
potential-trap effect is interpreted with reference to Ivey, H., Adv.Electronics, v.4,
1954, 137. Strong focusing action occurs even with small numbers of positive ions
in the interval between dynodes, primarily because they are practically immobile
during the course of the impulse (Spivak, G.V., et al., Zh. tekhn. fiz., v.2, 1950, 15).
An added effect is that of the partial compensation of the space charge of the elect-
rons. As a result the electron charge passing onto the 13th dynode is enlarged,
which in turn increases the amplitude of the output signal and, consequently, the
contribution of the gaseous focusing effect. Hence, the jumplike increase in the
fast-neutron impulse amplitude. This action of the residual gas (Ce) is termed
"gaseous enhancement." Any PhM that operates well under space-charge saturation
will also operate satisfactorily and stably under gaseous enhancement. The practi-
cal usefulness of this PhM operation for the registration of fast-neutron impulses is
evident. There are 6 figures and the 3 references cited in the text (2 Russian-langu-
ASSOCIATION; None given.   age Soviet, 1 English).
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S/796/62/000/003/015/019

AUTHORS: Stolyarova, Ye. L., Soldayeva, L.S., Suchkov, G.M.

TITLE: On the effect of the temperature of the medium on the readings of a
          scintillation counter.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza
          izlucheniy. no.3. 1962, 143-155.

TEXT: On the effect of the temperature (T) of the medium on the output-signal
amplitude (OSA) of a photoelectronic multiplier (PhM): 12 references are cited, of
which 10 are Western, relative to the dual effect of the T of the medium on the read-
ings of a scintillation counter, namely, the T effect on the OSA of the PhM and the
T dependence of the light output of the scintillators. The seeming contradictions in
the findings previously reported by Seliger-Ziegler, Ball, Boeschoten, Kinard, and
by two of the present authors are analyzed; it is concluded that no real contradiction
exists, but that within the T range of -50 to +50ºC the character of the change in the
amplification factor depends on certain design characteristics and the manufacturing
process employed in the making of the dynodes. It is possible that in passing to
lower T's the change in the photoelectron emission from the cathode with change in
T will become so significant that it may predominate over any dynode effects. Syste-
matic experiments over a broad T range are necessary to resolve this question.
On the effect of the T of the medium on the intensity of the deactivation fluorescence

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On the effect of the temperature of the medium...   S/796/62/0C0/003/015/019

of the scintillator crystals: A survey is made of the principal findings of 6 Western researchers on the intensity of the light flash that occurs in pure NaI crystals and in NaI(Tl) crystals under various types of ionizing radiation, and, more specifically, on the T effect which presumably can be attributed to the Tl activator therein. The primary practical value of such studies lies in the selection of optimal T's for obtaining the highest possible fluorescence intensity in scintillator crystals and also for the design of scintillators that are not T sensitive over a broad T range. The latter is the primary objective of this paper (desired T range: ± 50°C). Of especial interest is the investigation of the T effect on the slow components of the scintillation, since they may be utilized for the separate registration of neutron and γ-quantum impulses. The present investigation consists of two parts: (1) Investigation of the OSA of various Soviet PhM's with exposure of the photocathode to illumination by a standard light-pulse generator; (2) the same under exposure to the scintillation flashes of various scintillator crystals (SC) irradiated by a standard γ-radiation source. Comparison of (1) with (2) yielded: (a) An appraisal of the T effect on the Soviet SC's and PhM's investigated; (b) identification of a relatively T-insensitive combination of PhM and SC. Experimental setup and measurements: The general scheme of the test setup is described and illustrated. It comprises a thermostat, an automatic T control, a light-pulse generator, a cathode repeater with PhM equipped with divider, an amplifier ("Siren'"), a single-channel amplitude analyzer

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On the effect of the temperature of the medium... S/796/62/000/003/015/019

("Kashtan"), and a scaling circuit with a stabilized HV source ("Floks"). In view of the volumetric and T-range inadequacy of existing ultrathermostats (UT), a modified G.M.Suchkov UT (first developed in 1957) was employed; the heat carrier is ethyl alcohol to avoid any change of state in the ±50°C range. A two-stage centrifugal pump ensures intense heat-carrier circulation. Other details are described and shown in a schematic cross-section. T balance between PhM and the medium is attained within 40 min. The light-pulse generator should create pulses of duration similar to that of the crystal scintillation. In the present tests the light-pulse source consisted of the fluorescence of the glass (cf. Fleyshman, D.G., et al., Pribory i tekhnika eksperimenta, no. 6, 1957, 101) of an ordinary oscillograph tube under electron bombardment. Details of the light-pulse generator are described and shown in schematic cross-section. Experimental results: The experimental error was found to be 8%. The stability of the PhM was verified; the output-pulse peak shift was 3% in 10 hrs. The total change in amplitude within ±50°C is 3-18%; a ±10° deviation from +20° entails an amplitude range of 2-7%, i.e., within the accuracy of the experiment. Curves are plotted for two types of Soviet PhM's, showing that under illumination of the photocathode by a standard light-pulse generator the signal-amplitude (SA) T dependence is a function of the material and design of the PhM. In PhM's with (Cu,Al,Mg) alloy dynodes of boxlike structure the amplitude curves have a fairly distinct maximum in the -10 to +20° range, an effect that is attributed to a change in the initial velocities of the electrons
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·On the effect of the temperature of the medium...   S/796/62/000/003/015/019

at their exit from the emitters, which leads to an impairment in focusing and a loss of part of the electrons. In PhM's with Sb-Cs dynodes of trough-shaped structure, an increase in SA with T above room T is observed; this is attributed to Cs evolution into the PhM space. In PhM's with (CuAlMg)-alloy dynodes and a shutter-like structure, no T dependence of the SA was found. The effect of the T of the medium on the OSA of a scintillation counter consisting of T-stable FEU-11B PhM in combination with various inorganic scintillator crystals (NaI(Tl), CsI(Tl), and KI(Tl)) and organic crystals (stilbene, naphthalene, and tolane) is investigated; the tests were performed with 5-μcurie Cs^{137} standard γ-sources. The combination of an FEU-11B PhM with a KI(Tl) crystal is recommended as a scintillation counter for the -50 to +50°C range, since it is T-insensitive to within 10%, an error which is admissible in field-test conditions. Within the range from -10 to +50°C a combination consisting of an FEU-11B or FEU-13 PhM and NaI(Tl) or CsI(Tl) scintillators is practically T-insensitive. There are 7 figures and 14 references (2 Russian-language Soviet and 12 English-language).

ASSOCIATION: None given.

Card 4/4

S/796/62/000/003/018/019

AUTHORS: Stolyarova, Ye. L., Chukhin, S.G., Larichev, A.V.

TITLE: Equipment for the measurement of complex low-intensity γ-spectra.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Pribory i metody analiza izlucheniy. no.3. 1962, 181-185.

TEXT: A single-crystal scintillation γ-spectrometer was assembled for the experimental investigation of the passage of γ-rays through matter. A block diagram is shown. The remote portion of the spectrometer consists of a NaI(Tl) crystal, 80x80 mm, and a photoelectronic multiplier (PhM) ФЭУ-1Б (FEU-1B) with a 70-mm diam cathode, all enclosed in a Pb housing. The side shield of the housing, assembled of interlocking Pb bricks, is no less than 150 mm, that of the frontal wall (the collimator)no less than 300 mm thick. Collimators of 10, 20, 30, and 50-mm diam can be inserted for work with sources of various intensities (cross-section shown). The pulses pass from the anode load of the PhM to a zero-overload preamplifier and then onto the linear amplifier of the "Kashtan" equipment. A 100-channel analyzer is utilized. A special voltage divider serves to feed the electrode of the PhM with independent potential regulation on several electrodes (focusing system) to enhance the energy resolution. For example, for γ-rays of Cs^{137} (0.661 mev) a 9.5% energy resolution is attained, which is comparable to that

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Equipment for the measurement of complex ...   S/796/62/000/003/018/019

reported by J.Kockum (Nucl.Instrum., v.4, no.3, 1959, 171). The use of a large NaI(Tl) crystal ensures an elevated registration effectiveness (80% for 1-mev γ-rays, no less than 50% for 10-mev γ-rays); the heavy shielding reduces the background to about 15 pulses/sec. The stability of the equipment is good: 1.5-2% variation per day on the energy scale. The energy peak is also highly load-stable; a change in integral count from 500 to 5,000 pulses/sec engenders a shift in the peak of less than 2%. The instrument thus offers good promise for the measurement of complex γ-spectra over a broad range of energies and intensities, the measurement of the spectra of scattered γ-rays, and the performance of quantitative and qualitative isotope analysis, etc. A comparison is made between the elaboration of the amplitude spectrum of the γ-rays of equilibrium radium for Compton distribution as measured on the present equipment and D. Peirson's measurements (Nature, v.173, 1954, 990); the individual lines obtained with the present equipment are found to be defined more sharply. Spectra of the intensity of γ-rays from a Co^{60} source, scattered at angles of 20, 50, and 70° in a 16-cm thick Fe barrier, are also shown. There are 7 figures and the 2 above-cited English-language U.S. references.

ASSOCIATION: None given.

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S/759/62/000/004/014/016
D207/D308

AUTHORS: Stolyarova, Ye. L. and Cherevatenko, G. A.

TITLE: Some problems of radiation protection near accelerators

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Uskoriteli,
no. 4, 1962, 111-126

TEXT: A general review of shielding requirements is followed by
a discussion of the specific case of accelerators producing elec-
trons with energies up to 100 MeV. Shielding from the gamma-ray
bremsstrahlung is considered. Calculations show that concrete
shields up to 200 cm thick are required at 3.5 m from the target
subjected to a 100 MeV beam; for photoneutrons shielding only the-
oretical formulas are given. The authors describe also shielding
of American proton synchrocyclotrons (up to 400 MeV) by means of
concrete or composite blocks. The article is based mainly on Wes-
tern literature published in 1946 - 1959. There are 8 figures, 3
tables and 9 references.

Card 1/1

STOLYAROVA, Ye.L.; CHEREVATENKO, G.A.

Radiation protection near particle accelerators. Uskoriteli
no. 4:111-126 '62.   (MIRA 17:5)

GOLUBEV, Boris Pavlovich; SINEL'NIKOVA, L.N., red.; STOLYAROVA, Ye.I., red.; LARICNOV, G.Ye., tekhn. red.

[Dosimetry and protection against ionizing radiations] Dozimetriia i zashchita ot ioniziruiushchikh izluchenii. Moskva, Gosenergoizdat, 1963. 335 p.   (MIRA 16:8)
(Radiation--Dosage)   (Shielding (Radiation))

S/0058/64/000/006/A045/A045

ACCESSION NR: AR4043993

SOURCE: Ref. zh. Fizika, Abs. 6A415

AUTHOR: Stolyarova, Ye. L.; Kramer-Ageyev, Ye. A.; Fedorov, G. A.

TITLE: A fast-neutron spectrometer with organic boron scintillator

CITED SOURCE: Sb. Stsintillyatory* i stsintillyats. materialy*, Khar'kov,
Khar'kovsk. un-t, 1963, 167-169

TOPIC TAGS: fast neutron spectrometer, scintillator, organic boron scintillator

TRANSLATION: Examines the principle of operation of a fast-neutron spectrometer with
an organic boron scintillator. For two such scintillators, gives calculations of the
efficiency   for various incident-neutron energies. The first scintillator is a
solution of 4 g/l p-terphenyl in an equal mixture of trimethyl borate and o-xylene;
the second is a solution of 4 g/l of p-terphenyl in an equal mixture of toluene
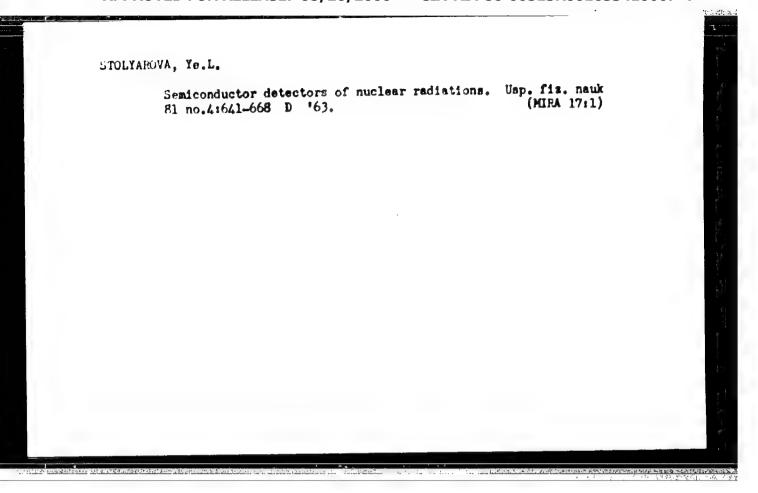and trimethyl borate. The diameter and height of the container of the first

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ACCESSION NR: AR4043993

scintillator was 40 mm, of tho second—80 mm. The calculation results are given in the form of graphs. Gives experimental neutron spectra of the Po-Be source obtained using each of these scintillators. Discusses the advantages of fast-neutron spectrometers with organic boron scintillator compared with other types of spectrometers.

SUB CODE: NP, OP   ENCL: 00
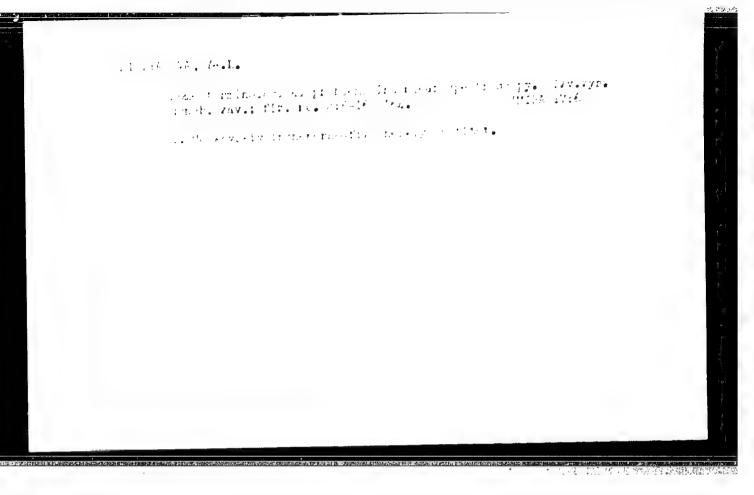
Card 2/2

STOLYAROVA, Ye.L.

Semiconductor detectors of nuclear radiations.   Usp. fiz. nauk
81 no.4:641-668   D '63.
                                                (MIRA 17:1)

STOLYAROVA, Ye. I.

"Concerning the Question about Establishing a Theoretical Limit of the Resolution of Scintillation Gamma Spectrometer."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

MIFI (Moscow Engineering Physics Inst)

L 25340-65   EWT(m)/T   IJP(c)

ACCESSION NR: AR4046134   S/0272/64/000/007/0165/0165

23
B

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika. Otdel'nyy vypusk,
7.32.1015

AUTHOR: Stolyarova, Ye. L.; Soldayeva, L. S.; Suchkov, G. M.

TITLE: Effect of environmental temperature on the readings of a scintillation
counter and the scintillation intensity of some scintillators

CITED SOURCE: Sb. Stsintillyatory i stsintillyats. materialy. Khar'kov,
Kar'kovsk. un-t, 1963, 99-105

TOPIC TAGS: scintillation counter, environmental temperature, scintillation
burst intensity, photomultiplier, signal amplitude analysis, potassium iodide
counter, thallium activator, radiometry

TRANSLATION: The authors solved problems related to the design of a scintilla-
tion counter with minimal dependence of its readings on environmental temperature
within the range from -50 to +50C. The study included an analysis of the output
signal amplitude in various types of domestically manufactured photomultipliers,
using a generator of standard light pulses to illuminate the photocathode, and an

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L 25340-65

ACCESSION NR: AR4046134

analysis of the photomultiplier output signal amplitude when the photocathode is illuminated by scintillation bursts from various crystal scintillators irradiated by a standard gamma source. Experimental results served to establish a poorly pronounced linear dependence of signal amplitude on temperature when a KI (Tl) crystal was used as a counter with the photomultipliers FEU-13 and FEU-11B. This counter is recommended as insensitive to variations of environmental temperature within the range from -50 to +50C (within 10% accuracy).

SUB CODE: *OP, EM*   ENCL: 00

Card 2/2

L 31635-65   EWT(m)/EPF(c)/EWP(j)   Pc-h/Pr-h   RM

ACCESSION NR: AR5005652   S/0058/64/000/012/A039/A040

SOURCE: Ref. zh. Fizika, Abs. 12A363

AUTHORS: Doroshenko, G. G.; Stolyarova, Ye. L.

TITLE: Method of estimating the effective scintillation de-excitation times

CITED SOURCE: Sb. Stsintillyatory i stsintillyats. materialy. Khar'kov, Khar'kovsk. un-t, 1963, 119-122

TOPIC TAGS: electron excitation, proton excitation, deexcitation time, tolane, anthracene, stilbene, naphthalene

TRANSLATION: A new simple method is proposed for estimating the effective de-excitation times by a relative method. The method is based on measuring the saturation amplitude at the output of a photo-multiplier operating under a special mode of deep saturation with

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L 31835-65
ACCESSION NR: AR5005652   3

space charge. In this mode, the amplitude of the saturation is de-
termined only by the effective time of de-excitation of the scintil-
lations. An estimate of the effective de-excitation times of the
investigated scintillators is made against calibration curves ob-
tained by the indicated method for scintillators with well known
de-excitation time, namely tolane, anthracene (electron excitation)
and NaI(Tl). The values of the effective de-excitation time, ob-
tained as a result of measurements of the saturation of different
scintillators excited with electrons and protons, turn out to be
as follows: stilbene -- τ_o = 15 msec and τ_p = 33 msec, naphthalene

τ = 126 msec, anthracene -- τ_p = 43 msec. The effective de-excitation

times of stilbene for electron and proton excitation, and also the
effective time of de-excitation of anthracene in the case of proton
excitation, were measured for the first time. The data obtained are
compared with data of other experiments.

SUB CODE: GP, OP   ENCL: 00

Card 2/2

L 1590-66   EhT(m)   DIAAP
AA5013197   BOOK EXPLOITATION   UR/
                                                        543.42+577.391

Stolyarova, Yekaterina Lukinichna

Applied spectrometry of ionising radiation (Prikladnaya spektrometriya ionisiruyushchikh izlucheniy) Moscow, Atomizdat, 1964. 422 p. illus., biblio.,
fold. charts. 2400 copies printed.

TOPIC TAGS: spectrometry, spectrometer, radioactivity measurement, spectrum
analysis, ionising radiation, radiation dosimetry, radiation shielding,
scintillation spectrometer, radioisotope.

PURPOSE AND COVERAGE: The book presents the basic problems in the spectrometry
of ionising radiation. Methods of measuring, spectral analysis and different
types of spectrometers are examined. Spectral analysis methods of radiation
used in the solution of the physical problems of shielding, dosimetry and
low-level activity measuring are discussed. The book is intended for physicists,
engineers and students who are interested in applied nuclear physics and in
the use of radioactive isotopes in technology.

TABLE OF CONTENTS (abridged):

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L 1590-66

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Ch. IV. Spectrometers of ionising radiation as in the capacity of tracking
          systems and computers — 411

Bibliography — 419

SUB CODE: NP, OP

SUBMITTED: 28Oct64

NO REF SOV: 204

OTHER: 252

Card 3/3

L 1167-66   EWT(m)   DIAAP

ACCESSION NR: AT5023153   UR/2892/65/000/004/0083/0091

AUTHOR: Stolyarova, Ye. L.

TITLE: A gamma spectrometer with semiconductor detectors

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Voprosy dozimetrii i zashchity ot izlucheniy. no. 4, 1965, 83-91

TOPIC TAGS: gamma spectrometer, semiconductor device, gamma radiation, silicon semiconductor, germanium semiconductor, lithium, scintillation spectrometer

ABSTRACT: Satisfactory spectra have not been obtained to date with silicon detectors for gamma radiation, since gamma quanta, because of their great penetrating capacity, pass through the thin depleted layer of the detector leaving only a small part of their energy. The depth of the depleted layer in a semiconductor detector is determined by the formula

$$l = k\sqrt{\varepsilon(U_0 - U)\rho\rho} \, , \qquad (1)$$

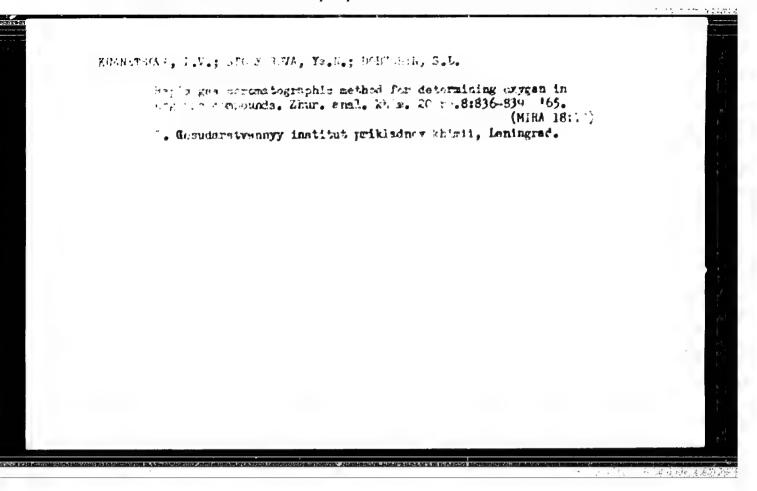Card   1/3

L 1167-66

ACCESSION NR: AT5023153 C

where k is the coefficient of proportionality; $\mathcal{E}$ is the dielectric constant; U_o is
the contact potential difference; U is the grid bias; p is the specific resistance;
and μ is the mobility of the carrier. There are two means of increasing the depth
of the depleted layer: by increasing the grid bias and by increasing the specific
resistance of the material of the detector. The article is devoted to a discussion
of the second of these means, that is, artificial increasing specific resistance by
the introduction of a donor additive into the material of the detector to compen-
sate the acceptor impurities. The method consists of the introduction of lithium
ions into the silicon or germanium by p-type diffusion. Gamma spectra were
obtained with lithium drift silicon detectors for Cr^{51}, I^{131}, Cs^{137}, and Co^{60}.
For Cs^{137}, the resolution by this method was 1.5%, which exceeds the resolution
obtained by scintillation spectrometry. The efficiency of different processes for
gamma ray absorption in the material of a detector rises with an increase in the
atomic number. The linear photoelectric coefficient for the absorption of gamma
rays with an energy of 100 kev in germanium is almost 40 times greater than in
silicon. It is claimed that the new method gives greater resolution and offers the
possibility of taking weight spectra simultaneously. Orig. art. has: 3 formulas
and 5 figures

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L 1167-66
ACCESSION NR: AT5023153

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NR REF SOV: 005 OTHER: 008

Card 3/3

ZAV'YALOV, V.D.; STOLYAROVA,-Ye.N.

Seismic prospecting by using the mass three-dimensional sounding
technique. Prikl. geofiz. no.17:33-66 '57.   (MIRA 11:2)
          (Prospecting--Geophysical methods)
          (Seismic waves)

KURNETSOV, I.V.; STOLYAROVA, Ye.K.; DOBYCHIN, S.L.

Rapid gas chromatographic method for determining oxygen in organic compounds. Zhur. anal. khim. 20 no.8:836-839 '65.
(MIRA 18:11)

1. Gosudarstvennyy institut prikladnoy khimii, Leningrad.

"Investigation of the Component of Color Development of
Pyrazolone Derivatives, Silver Bromide Absorption," Sub 5
Apr 61, All-Union Sci Res Cinematographic Inst (NIKFI),
Ministry of Cinematography USSR.

Dissertations presented for science and engineering degrees
in Moscow during 1961.

SO: Sum, No. 481, 9 May 62

USSR/Chemistry - Photography   Dec 52

"Adsorption of Pyrazolone and 1-Hydroxynaphthalene
Derivatives on Silver Bromide," Ye. V. Stolyarova and
V. S. Chel'tsov, All-Union Sci Res Cinephoto Inst

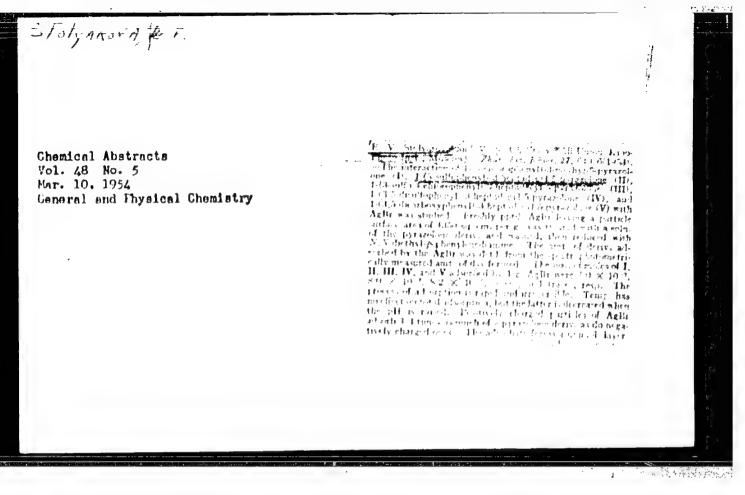"DAN SSSR" Vol 87, No 6, pp 1025-1028

On the basis of the results obtained, it was con-
cluded that the derivatives of pyrazolone and 1-hy-
droxynaphthalene adsorb on silver bromide in a mono-
molecular layer. Presented by Acad P. A. Rebinder
17 Oct 52.

240T12

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
General and Physical Chemistry

'E. V. Sich... ...The interaction of ... a ... by-5-pyrazol-one (I), 1,5-... (II), 1-(3-... (III), 1-(3-... -5-pyrazolone (IV), and 1-(3,5-di... ...-5-pyrazolone (V) with AgBr was studied. Freshly prepd. AgBr having a particle surface area of ... was ... with a soln. of the pyrazolone deriv. and washed, then reduced with N,N-diethyl-p-phenylenediamine. The amt. of deriv. adsorbed by the AgBr was ... from the ... photometrically measured amt. of dye formed. The ... derived of I, II, III, IV, and V adsorbed by 1 g. AgBr were ... × 10⁻⁷, ... × 10⁻⁷, ... × 10⁻⁷ ... resp. The process of adsorption is rapid and ... little. Temp. has no effect on rate of adsorption, but the latter is decreased when the pH is raised. Positively charged particles of AgBr adsorb I from a ... of a pyrazolone deriv. as do negatively charged ones. ... from a ... layer ...

STOLYAROVA, Z.; UGLYANITSA, G.; ARTEMENKO, I., starshiy ekonomist

From the work practice of main State Bank branches. Den. i kred. 20 no.12:42-45 D '62.   (MIRA 16:1)
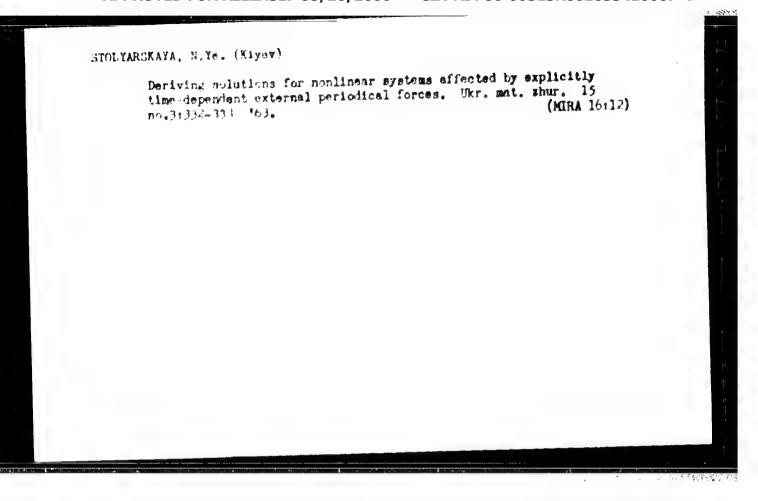
1. Zamestitel' upravlyayushchego Alekseyevskim golovym otdeleniyem Gosbanka Belgorodskoy oblasti (for Stolyarova).
2. Nachal'nik otdela kreditovaniya kolkhozov Stavropol'skoy kontory Gosbanka (for Uglyanitsa).

(Banks and banking)   (Agriculture—Finance)

STOLYARSKAYA, I.A., inzhener.

Reinforced concrete bridges abroad. Avt. dor. 19 no.7:27-29
(MLRA 9:10)
Jl '56.

(Europe, Western--Bridges, Concrete)

STOLYARSKAYA, N.Ye. (Kiyev)

Deriving solutions for nonlinear systems affected by explicitly
time-dependent external periodical forces. Ukr. mat. zhur. 15
no.3:332-33 '63.
(MIRA 16:12)

ACCESSION NR: AP4012582

AUTHOR: Stolyars'ka N. Ye.

TITLE: Effect of external periodic forces on single-frequency vibrations in systems with many degrees of freedom

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1964, 155-158

TOPIC TAGS: vibration

ABSTRACT: Approximate solutions are fund for the case of a non-autonomous system described by a quasi-linear system of (n +2) ordinary differential equations

$$\frac{dy_s}{dt} = q_{s1}y_1 + q_{s2}y_2 + \ldots + q_{sn+2}y_{n+2} + \epsilon Y_s(\nu t, y_1, \ldots, y_{n+2}). \qquad (1)$$

where q_{sk} are constants, ϵ is a parameter of small magnitude, and $Y_s(\nu t, y_1, \ldots, y_{n+2})$ are functions periodic with respect to νt with a period of 2π, which can be represented in the form of finite Fourier sums with coefficients

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ACCESSION NR: AP4012582

constituting certain polynomes with respect to y_k ($k = 1, 2, \ldots, n + 2$). The scheme for constructing asymptotic approximations is similar to that applied by A. I. Lur'ye (Tr. Leningradsk. Politekhn. In-ta, 192, 96, 1958), but the method for determining the values $\dot{u}_k$, B_k is different. Orig. art. has 17 formulas.

ASSOCIATION: Instytut Matematyky, AN URSR (Institute of Mathematics, AN URSR)

SUBMITTED: 05Jun63   DATE ACQ: 03Mar64   ENCL: 00

SUB CODE: PH   NO REF SOV: 002   OTHER: 000

Card 2/2

STOSROVSKIY, I. D.

OSTROVSKIY, Isaak Davidovich; MOTYL', Vasiliy Vladimirovich; STOLYARSKIY,
L.L., redakter; KAMOLOVA, V.M., tekhnicheskiy redakter.

[Experiment in use of block units in making superstructures for
tankers of the "Leningrad" type] Opyt izgotovleniia nadstroek blokami
dlia tankerov tipa "Leningrad". Leningrad, Gos.soiuznoe izd-vo sudo-
stroit.promyshl., 1955.61 p.   (MLRA 9:5)
                (Shipbuilding) (Tank vessels)

VOROB'YEV, A.I.: GLOZMAN, M.K.: GORBUSHIN, A.I.;KOSTINSKIY, I.Ye.;
    MAKSIMOV, I.I.: PROLYGIN, V.I.: STOLYARSKIY, L.L. KIMPEL' M.P.
    redaktor: POL'SKAYA, R.G., tekhnicheskiy redaktor; FRUMKIN,
P.S., tekhnicheskiy redaktor.

[Ship finishing work] Sudovye dostroechnye raboty. Leningrad,
Gos. Soiuznoe izd-vo sudostroit. promysh., 1955. 159 p. (MLRA 8:8)
        (Shipbuilding)

BELOV, M.P.; GLOZMAN, M.K.; GORBUSHIN, A.I.; POLYAKOV, K.K.; ROSHCHIN, M.B.; STOLYARSKIY

Practice of mounting ship sections framed to a given size on shipyard slip. Trudy VNITOSS 6 no.2:117-142 '55.   (MLRA 10:5)
                        (Shipbuilding)

STOLYARSKIY, L. L., inzhener.

Activities of the Leningrad Province Administration of Scientific
and Technical Associations of the Shipbuilding Industry. Sudostroenie
23 no.4:64 Ap '57.   (MLRA 10:5)
          (Leningrad--Shipbuilding) (Naval research)